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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SCOTT, RANDY A	
ART UNIT	**PAPER NUMBER**
2453	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/662,379	NISHIMURA ET AL.	
	Examiner	Art Unit	
	RANDY SCOTT	2453	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 January 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3 and 5-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/9/09*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the communication filed on 6/16/2009.

2. Claims 1, 3, 5-7, 14-18, and 21 are amended, and Claims 2 and 4 are canceled by the present amendment.

Claim Rejections – 35 USC 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained through the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 15-16, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dantu et al (US 2006/0233137) in view of Hayashi et al (US 6,598,071), further in view of Perkins et al (US 2003/0202506).

Regarding claims 1 and 15, Dantu et al discloses a plurality of access routers (see fig. 3); a plurality of relay routers (see fig. 14), at least one of the plurality of relay routers multicasting multicasts the data being transmitted from a correspondent terminal to a mobile terminal (see sec [0081], lines 1-3), and one of the at least one of the plurality of relay routers being present on each of the one or more paths for delivery of data from the correspondent terminal to the mobile terminal via one or more of the plurality of access routers used in a multipath handover state by

the mobile terminal (see sec [0089], lines 1-10); acquiring means for acquiring, from each of the plurality of access routers, path information between a first relay router connected to the correspondent terminal as a start point and each of the plurality of access routers used in the multi-path handover state by the mobile terminal as an end point (see sec [0063], lines 3-12, which discloses a MPLS forwarding table, a list of router IDs for given paths, and a incoming path to outgoing forwarding table for routing forwarding decisions); selecting means for selecting the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal (see sec [0102], lines 1-3), hop by hop from the start point; when, with a given hop as a target for the comparisons, a same relay router is passed in all the paths, perform comparisons about a next hop (see sec [0097], lines 4-9), make sequential comparisons of path information acquired by the acquiring means, hop by hop from the start point; when, with a given hop as a target for the comparisons (see sec [0063], lines 16-20), a same relay router is passed in all the paths, perform comparisons about a next hop (see sec [0096], lines 4-8); select as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal (see sec [0081], lines 1-3), a last relay router encountered in each of the one or more paths from the start point to the end point (see sec [0085], lines 3-8).

Dantu et al fails to teach a server apparatus dynamically switching which of the at least one of the plurality of relay routers is the one of the at least one of the plurality of relay routers, based on the movement of the mobile terminal or the correspondent terminal changing which of the plurality of relay routers is present on each of the one or more paths from the correspondent terminal to the mobile terminal, the selecting means being configured to: make sequential

comparisons of path information acquired by the acquiring means, select as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, a last relay router encountered in each of the one or more paths from the start point to the end point, and instructing means for instructing the one of the at least one of the plurality of relay routers selected by the selecting means, to multicast the data.

Hayashi et al teaches the specified deficiencies, including a server apparatus dynamically switching which of the at least one of the plurality of relay routers is the one of the at least one of the plurality of relay routers (see col. 3, lines 45-50, which discloses dynamic routing via dynamically switching servers), based on the movement of the mobile terminal or the correspondent terminal changing which of the plurality of relay routers is present on each of the one or more paths from the correspondent terminal to the mobile terminal (see col. 11, lines 65-67).

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al with the general concept taught by Hayashi et al in order to successfully perform dynamic switching in light of handover and node relocation with the motivation of providing the benefit of teaching identifying a path and router for communication transmission when using a dynamic routing protocol.

Dantu et al and Hayashi et al fail to teach selecting means being configured to: make sequential comparisons of path information acquired by the acquiring means, select as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, a last relay router encountered in each of the one or more paths from the start point to the end point, and instructing means for instructing the one

of the at least one of the plurality of relay routers selected by the selecting means, to multicast the data.

Perkins et al teach the specified deficiencies, including selecting means being configured to: make sequential comparisons of path information acquired by the acquiring means (see sec [0203], lines 15-18, which teaches comparing path hop information in order to select a path pair), select as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal (see sec [0172], which teaches selection of routers to perform the broadcast and multicast related embodiments), a last relay router encountered in each of the one or more paths from the start point to the end point (see sec [0049], lines 7-9), and instructing means for instructing the one of the at least one of the plurality of relay routers selected by the selecting means, to multicast the data (see fig. 12).

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al and Hayashi et al with the general concept taught by Perkins et al in order to sufficiently choose optimal paths and routers for multicasting information to wireless devices motivation of providing the benefit of teaching multicast delivery and router switching.

Regarding claim 14, Dantu et al disclose:

Acquiring means for acquiring, from each of the plurality of access routers, path information between a first relay router connected to the correspondent terminal as a start point (see sec [0086], lines 2-5) and each of the plurality of access routers (see sec [0087], lines 2-7) used in the multipath handover state by the mobile terminal (see sec [0015], lines 4-7) as an end point; selecting means for selecting the at least one of the plurality of relay routers to multicast

the data transmitted from the correspondent terminal to the mobile terminal (see sec [0061], lines 2-5), the selecting means being configured to:

make sequential comparisons of path information acquired by the acquiring means, hop by hop from the start point; when, with a given hop as a target for the comparisons (see sec [0063], lines 16-20), a same relay router is passed in all the paths, perform comparisons about a next hop (see sec [0096], lines 4-8); select as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal (see sec [0081], lines 1-3), a last relay router encountered in each of the one or more paths from the start point to the end point (see sec [0085], lines 3-8), and instructing means for instructing the at least one of the plurality of relay routers selected by the selecting means, to multicast the data (see sec [0081], lines 1-3).

Regarding claims 16 and 21, Dantu et al disclose:

Acquiring means for acquiring path information between a router connected to the correspondent terminal and each of the access routers used in the multipath handover state by the mobile terminal (see sec [0089], lines 1-3), based on information in a link state database of Open Shortest Path First (OSPF), which was acquired from the router or the access router (see sec [0061], lines 5-7); selecting means for selecting the at least one of the plurality of relay routers to multicast the data (see sec [0020], lines 2-5), based on a result of a comparison of the path information acquired by the acquiring means (see sec [0062], lines 2-5); and instructing means for instructing the at least one of the plurality of relay routers, selected by the selecting means, to multicast the data instructing means for instructing the router selected by the selecting means, to multicast the data (see sec [0081], lines 1-3), make sequential comparisons of path information

acquired by the acquiring means, hop by hop from the start point; when, with a given hop as a target for the comparisons (see sec [0063], lines 16-20), a same relay router is passed in all the paths, perform comparisons about a next hop (see sec [0096], lines 4-8); select as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal (see sec [0081], lines 1-3), a last relay router encountered in each of the one or more paths from the start point to the end point (see sec [0085], lines 3-8).

5. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dantu et al (US 2006/0233137) in view of Hayashi et al (US 6,598,071) and Perkins et al (US 2003/0202506), further in view of Cheng (US 2002/0150094).

Regarding claim 3, Dantu et al, Hayashi et al, and Perkins et al disclose the limitations previously addressed.

However, Dantu et al, Hayashi et al, and Perkins et al do not disclose:

The method wherein a router connected to the correspondent terminal transmits path information to each of the access routers used in the multipath handover state by the mobile terminal, and wherein each path information is routed through a shortest path from said router as a start point to each of the access routers as an end point, a router passed by each path information records identification information of said router in each path information, each of the access routers refers to the path information received, so as to acquire routers on the shortest path from the start point to the end point, and a passing order thereof on the shortest path, wherein at

an opportunity of a change in the access routers used in the multipath handover state by the mobile terminal, the server apparatus sequentially executes the acquiring process, the selecting process, and the instructing process.

The general concept of wherein a router connected to the correspondent terminal transmits path information to each of the access routers used in the multipath handover state by the mobile terminal (see sec [0141], lines 20-25 and sec [0142], lines 4-8, which teaches that the location information is sent to the routers in the handover of multicast sessions for the mobile environment), and wherein each path information is routed through a shortest path from said router as a start point to each of the access routers as an end point (see sec [0252] and [0256], which teaches shortest path for end to end transmission), a router passed by each path information records identification information of said router in each path information (see sec [0053], lines 2-6, which teaches a root identifier that identifies regions information of multicast group addresses in which routers use to direct packets), and each of the access routers refers to the path information received, so as to acquire routers on the shortest path from the start point to the end point, and a passing order thereof on the shortest path (see sec [0162], lines 7-10, which teaches that the shortest path from a source to each of the receivers and the multicast tree is shared by all sources and receivers of the same group), wherein at an opportunity of a change in the access routers used in the multipath handover state by the mobile terminal, the server apparatus sequentially executes the acquiring process, the selecting process, and the instructing process (see sec [0130], lines 7-12, which discloses the selection and acquisition process for routers that handle the multicast traffic) are well known within the art as illustrated by Cheng et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, and Perkins et al with the general concept taught by Cheng et al in order to sufficiently implement a multicasting protocol.

Regarding claim 6, Dantu et al, Hayashi et al, and Perkins et al do not disclose:

The method wherein a router connected to the correspondent terminal transmits path information to each of the access routers used in the multipath handover state by the mobile terminal, and wherein each path information is routed through a shortest path from said router as a start point to each of the access routers as an end point, a router passed by each path information records identification information of said router in each path information, each of the access routers refers to the path information received, so as to acquire routers on the shortest path from the start point to the end point, and a passing order thereof on the shortest path, wherein at an opportunity of a change in the access routers used in the multipath handover state by the mobile terminal, the server apparatus sequentially executes the acquiring process, the selecting process, and the instructing process.

The general concept of wherein a router connected to the correspondent terminal transmits path information to each of the access routers used in the multipath handover state by the mobile terminal (see sec [0141], lines 20-25 and sec [0142], lines 4-8, which teaches that the location information is sent to the routers in the handover of multicast sessions for the mobile environment), and wherein each path information is routed through a shortest path from said router as a start point to each of the access routers as an end point (see sec [0252] and [0256], which teaches shortest path for end to end transmission), a router passed by each path

information records identification information of said router in each path information (see sec [0053], lines 2-6, which teaches a root identifier that identifies regions information of multicast group addresses in which routers use to direct packets), and each of the access routers refers to the path information received, so as to acquire routers on the shortest path from the start point to the end point, and a passing order thereof on the shortest path (see sec [0162], lines 7-10, which teaches that the shortest path from a source to each of the receivers and the multicast tree is shared by all sources and receivers of the same group), wherein at an opportunity of a change in the access routers used in the multipath handover state by the mobile terminal, the server apparatus sequentially executes the acquiring process, the selecting process, and the instructing process (see sec [0130], lines 7-12, which discloses the selection and acquisition process for routers that handle the multicast traffic) are well known within the art as illustrated by Cheng et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, and Perkins et al with the general concept taught by Cheng et al in order to sufficiently implement a multicasting protocol.

7. Claims 5, 9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dantu et al (US 2006/0233137) in view of Hayashi et al (US 6,598,071) and Perkins et al (US 2003/0202506), further in view of Sekine et al (US 2001/0024429).

Regarding claim 5, Dantu et al, Hayashi et al, and Perkins et al disclose the limitations previously addressed.

However, Dantu et al, Hayashi et al, and Perkins et al do not disclose:

Cancelling the multicast of the data, in conjunction with the selection of the router receives a multicast stop request from the server apparatus and stops multicasting the data, and wherein the multicast stop request contains identification information of a sender and a recipient of the multicast stop request and also contains identification information of the mobile terminal.

The general concept of cancelling the multicast of the data (see sec [0129], lines 4-7) and wherein the router removed from the router to multicast the data, in conjunction with the selection of the router receives a multicast stop request from the server apparatus and stops multicasting the data (see sec [0129-0130], which teaches that the request is sent between the MCC from the base station), and wherein the multicast start request contains identification information of a sender and a recipient of the multicast start request and also contains identification information of the mobile terminal and identification information of routers as multicast destinations, and wherein the multicast stop request contains identification information of a sender and a recipient of the multicast stop request and also contains identification information of the mobile terminal (see sec [0129-0130], which teaches a handover stop request) is well known within the art as illustrated by Sekine et al..

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, and Perkins et al with the general concept of taught by Sekine et al in order to sufficiently implement a handover protocol.

Regarding claim 9, Dantu et al, Hayashi et al, and Perkins et al do not disclose:

Cancelling the multicast of the data, in conjunction with the selection of the router receives a multicast stop request from the server apparatus and stops multicasting the data, and wherein the multicast stop request contains identification information of a sender and a recipient of the multicast stop request and also contains identification information of the mobile terminal.

The general concept of cancelling the multicast of the data (see sec [0129], lines 4-7) and wherein the router removed from the router to multicast the data, in conjunction with the selection of the router receives a multicast stop request from the server apparatus and stops multicasting the data (see sec [0129-0130], which teaches that the request is sent between the MCC from the base station), and wherein the multicast start request contains identification information of a sender and a recipient of the multicast start request and also contains identification information of the mobile terminal and identification information of routers as multicast destinations, and wherein the multicast stop request contains identification information of a sender and a recipient of the multicast stop request and also contains identification information of the mobile terminal (see sec [0129-0130], which teaches a handover stop request) is well known within the art as illustrated by Sekine et al..

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, and Perkins et al with the general concept taught by Sekine et al in order to sufficiently implement a handover protocol.

Regarding claim 13, Dantu et al, Hayashi et al, and Perkins et al do not disclose:

Cancelling the multicast of the data, in conjunction with the selection of the router receives a multicast stop request from the server apparatus and stops multicasting the data, and

wherein the multicast stop request contains identification information of a sender and a recipient of the multicast stop request and also contains identification information of the mobile terminal.

The general concept of cancelling the multicast of the data (see sec [0129], lines 4-7) and wherein the router removed from the router to multicast the data, in conjunction with the selection of the router receives a multicast stop request from the server apparatus and stops multicasting the data (see sec [0129-0130], which teaches that the request is sent between the MCC from the base station), and wherein the multicast start request contains identification information of a sender and a recipient of the multicast start request and also contains identification information of the mobile terminal and identification information of routers as multicast destinations, and wherein the multicast stop request contains identification information of a sender and a recipient of the multicast stop request and also contains identification information of the mobile terminal (see sec [0129-0130], which teaches a handover stop request) is well known within the art as illustrated by Sekine et al..

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, and Perkins et al with the general concept taught by Sekine et al in order to sufficiently implement a handover protocol.

8. Claims 7-8, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dantu et al (US 2006/0233137) in view of Hayashi et al (US 6,598,071), Perkins et al (US 2003/0202506), and Cheng (US 2002/0150094), further in view of Cetin et al (US 2004/0028064).

Regarding claim 7, Dantu et al, Hayashi et al, and Perkins et al discloses the limitations previously addressed; However, Dantu et al, Hayashi et al, and Perkins et al do not teach:

The method wherein at an opportunity of a change in the access routers used in the multipath handover state by the mobile terminal, the server apparatus sequentially executes the acquiring process, the selecting process, and the instructing process and wherein one of the access routers used in the multipath handover state by the mobile terminal sends a path information request to the correspondent terminal under communication with the mobile terminal.

The general concepts of wherein at an opportunity of a change in the access routers used in the multipath handover state by the mobile terminal, the server apparatus sequentially executes the acquiring process, the selecting process, and the instructing process (see sec [0130], lines 7-12, which discloses the selection and acquisition process for routers that handle the multicast traffic) and wherein one of the access routers used in the multipath handover state by the mobile terminal sends a path information request to the correspondent terminal under communication with the mobile terminal (see sec [0098] and fig. 40) are well known within the art as illustrated by Cheng et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, and Perkins et al with the general concept taught by Cheng et al in order to sufficiently implement a multicasting protocol.

Dantu et al, Hayashi et al, Perkins et al, and Cheng et al, do not teach wherein the router connected to the correspondent terminal terminates the path information request and at this

opportunity, said router sends path information to each of the access routers used in the multipath handover state by the mobile terminal.

The general concept of wherein the router connected to the correspondent terminal terminates the path information request and at this opportunity, said router sends path information to each of the access routers used in the multipath handover state by the mobile terminal (see sec [0040], which discloses terminating a path request) is well known within the art as illustrated by Cetin et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, Perkins et al, and Cheng et al with the general concept taught by Cetin et al in order to sufficiently implement a switching environment.

Regarding claim 8, Dantu et al, Hayashi et al, Perkins et al, and Cheng et al fail to teach wherein the router connected to the correspondent terminal terminates the path information request and at this opportunity, said router sends path information to each of the access routers used in the multipath handover state by the mobile terminal.

The general concept of wherein the router connected to the correspondent terminal terminates the path information request and at this opportunity, said router sends path information to each of the access routers used in the multipath handover state by the mobile terminal (see sec [0040], which discloses terminating a path request) is well known within the art as illustrated by Cetin et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, Perkins et al, and Cheng et with the general concept taught by Cetin et al in order to sufficiently implement a switching environment.

Regarding claim 11, Dantu et al, Hayashi et al, Perkins et al, and Cheng et al, fail to teach wherein the router connected to the correspondent terminal terminates the path information request and at this opportunity, said router sends path information to each of the access routers used in the multipath handover state by the mobile terminal.

The general concept of wherein the router connected to the correspondent terminal terminates the path information request and at this opportunity, said router sends path information to each of the access routers used in the multipath handover state by the mobile terminal (see sec [0040], which discloses terminating a path request) is well known within the art as illustrated by Cetin et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, Perkins et al, and Cheng et al with the general concept taught by Cetin et al in order to sufficiently implement a switching environment.

Regarding claim 12, Dantu et al, Hayashi et al, Perkins et al, and Cheng et al do not teach wherein the router connected to the correspondent terminal terminates the path information request and at this opportunity, said router sends path information to each of the access routers used in the multipath handover state by the mobile terminal.

The general concept of wherein the router connected to the correspondent terminal terminates the path information request and at this opportunity, said router sends path information to each of the access routers used in the multipath handover state by the mobile terminal (see sec [0040], which discloses terminating a path request) is well known within the art as illustrated by Cetin et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, Perkins et al, and Cheng et al with the general concept taught by Cetin et al in order to sufficiently implement a switching environment.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dantu et al (US 2006/0233137) in view of Hayashi et al (US 6,598,071), Perkins et al (US 2003/0202506), and in view of Sekine et al (US 2001/0024429), further in Furukawa et al (US 2002/0009073).

Regarding claim 10, Dantu et al disclose a server apparatus connected to a plurality of relay routers and to a plurality of access routers, the server apparatus being configured to instruct a router existing on paths for delivery of data from a correspondent terminal to a mobile terminal via each of access routers used in a multipath handover state by the mobile terminal (see sec [0222], lines 2-5, “handover”).

Dantu et al, Hayashi et al, and Perkins et al fail to teach cancelling the multicast of the data and wherein the router removed from the router to multicast the data, in conjunction with the selection of the router receives a multicast stop request from the server apparatus and stops multicasting the data.

The general concept of cancelling the multicast of the data (see sec [0129], lines 4-7) and wherein the router removed from the router to multicast the data, in conjunction with the selection of the router receives a multicast stop request from the server apparatus and stops multicasting the data (see sec [0129-0130], which teaches that the request is sent between the MCC from the base station) is well known within the art as illustrated by Sekine et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, Perkins et al with the general concept taught by Sekine et al in order to sufficiently implement a handover protocol.

Dantu et al, Hayashi et al, Perkins et al, and Sekine et al, fail to teach when receiving the data addressed to the mobile terminal, the router newly selected by the selecting means making copies of the data by the number of routers as multicast destinations and transmits the data copies to the respective multicast destinations.

The general concept of wherein, when receiving the data addressed to the mobile terminal, the router newly selected by the selecting means makes copies of the data by the number of routers as multicast destinations and transmits the data copies to the respective multicast destinations (see sec [1128], lines 1-3, which teaches copying of internal IP packets) is well known within the art as illustrated by Furukawa et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, Perkins et al, and Sekine et al with the general concept taught by Furukawa et al in order to sufficiently implement a multicasting protocol.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dantu et al (US 2006/0233137) in view of Hayashi et al (US 6,598,071), Perkins et al (US 2003/0202506), further in view of Johansson et al (US 2002/0080752).

Regarding claim 17, Dantu et al disclose a server apparatus connected to a plurality of relay routers and to a plurality of access routers, the server apparatus being configured to instruct a router existing on paths for delivery of data from a correspondent terminal to a mobile terminal via each of access routers used in a multipath handover state by the mobile terminal (see sec [0222], lines 2-5, "handover"), acquiring from at least one router belonging to each management area of OSPF used by a network, information in a link state database made in the management area to which said router belongs (see sec [0111], lines 2-10, "ospf"); receiving from a router connected to the correspondent terminal, a start point search response indicating that said router is a start point of path information; activate a shortest path algorithm with the router indicated by the start point search response (see sec [0104, lines 4-8, "spaaning tree algorithm" and sec [0111], lines 5-8, "shortest path calculations"), as a start point, and thereby generate a shortest hop tree with said router at a start point; and refer to the shortest hop tree to acquire as path information, routers on a shortest path from the router as a start point to each access router as an end point, and a passing order thereof (see sec [0113], lines 1-4, "next hop along the shortest path").

Dantu et al, Hayashi et al, and Perkins et al fail to teach changing all cost values between routers or access routers, recorded in the link state database, to an identical numeral larger than 0 according to need.

Johansson et al teach the specified deficiencies (see sec [0077], lines 5-10, "lower cost").

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, and Perkins et al with the general concept taught by Johansson et al in order to sufficiently implement shortest path routing system.

11. Claims 18, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dantu et al (US 2006/0233137) in view of Hayashi et al (US 6,598,071), Perkins et al (US 2003/0202506), and in view of Johansson et al (US 2002/0080752), further in view of Ludwig et al (US 6,816,471).

Regarding claim 18, Dantu et al, Hayashi et al, and Perkins et al teach the limitations previously addressed:

Dantu et al, Hayashi et al, and Perkins et al fail to teach changing all cost values between routers or access routers, recorded in the link state database, to an identical numeral larger than 0 according to need and wherein the start point search request contains identification information of a sender and a recipient of the start point search request and also contains identification information of the mobile terminal.

The general concept of changing all cost values between routers or access routers, recorded in the link state database, to an identical numeral larger than 0 according to need (see sec [0077], lines 5-10, "lower cost") is well known within the art as illustrated by Johansson et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, and Perkins et al with the general concept of changing all cost values between routers or access routers, recorded in the link state database, to an identical

numeral larger than 0 according to need as taught by Johansson et al in order to sufficiently implement shortest path routing system.

Dantu et al, Hayashi et al, Perkins et al, and Johansson et al fail to teach wherein the start point search request contains identification information of a sender and a recipient of the start point search request and also contains identification information of the mobile terminal.

The general concept of wherein the start point search request contains identification information of a sender and a recipient of the start point search request and also contains identification information of the mobile terminal (see col. 7, lines 8-11, "defined start point" and col. 8, lines 10-14, which teaches data unit addressing and identification) is well known within the art as illustrated by Ludwig et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, Perkins et al, and Johansson et al with the general concept taught by Ludwig et al in order to sufficiently implement a multi-path handover environment.

Regarding claim 19, Dantu et al, Hayashi et al, Perkins et al, and Johansson et al fail to disclose wherein the start point search request contains identification information of a sender and a recipient of the start point search request and also contains identification information of the mobile terminal.

The general concept of wherein the start point search request contains identification information of a sender and a recipient of the start point search request and also contains identification information of the mobile terminal (see col. 7, lines 8-11, "defined start point" and

col. 8, lines 10-14, which teaches data unit addressing and identification) is well known within the art as illustrated by Ludwig et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al and Johansson et al with the general concept of wherein the start point search request contains identification information of a sender and a recipient of the start point search request and also contains identification information of the mobile terminal as taught by Ludwig et al in order to sufficiently implement a multi-path handover environment.

Regarding claim 20, Dantu et al, Hayashi et al, Perkins et al, and Johansson et al fail to teach wherein the start point search request contains identification information of a sender and a recipient of the start point search request and also contains identification information of the mobile terminal.

The general concept of wherein the start point search request contains identification information of a sender and a recipient of the start point search request and also contains identification information of the mobile terminal (see col. 7, lines 8-11, "defined start point" and col. 8, lines 10-14, which teaches data unit addressing and identification) is well known within the art as illustrated by Ludwig et al.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Dantu et al, Hayashi et al, Perkins et al, and Johansson et al with the general concept taught by Ludwig et al in order to sufficiently implement a multi-path handover environment with the motivation of providing the benefit of teaching data transmission between routers over delivery paths between mobile devices.

Response to Arguments

12. Applicant's arguments have been taken into consideration, but are moot in view of new grounds of rejection.

A. In response to the applicant's argument that Dantu fails to teach at least one of the plurality of relay routers multicasting multicasts the data being transmitted from a correspondent terminal to a mobile terminal:

Sec [0081], lines 2-4 of Dantu discloses traffic being multicast from an active set of wireless routers for simultaneous transmission to a mobile device.

B. In response to the applicant's argument that Navas does not select as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, a last relay router encountered in each of the one or more paths from the start point to the end point:

The applicant's argument has been considered; however, Sec [0085] of Dantu, lines 2-7, has been cited, which teaches identifying a list of router IDs and LSPs for a given tail-end router ID, where the head-end is the point at which traffic is transmitted in the LSP and the tail-end is the point at which traffic is received from the LSP. Correspondingly, the bit map of the call ID and the next hop LSP is updated. Path, burst, and bandwidth allocations are negotiated and set up during the set up of the LSPs.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy A. Scott whose telephone number is (571) 272-3797. The examiner can normally be reached on Monday-Thursday 7:30 am-5:00 pm, second Fridays 7:30 am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Thomas can be reached on (571) 272-6776. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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